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Fire Marshal Bureau, Department of Justice, 1409 Helena Ave., Helena, MT 59620
Soil Conservation Service, Federal Building, Bozeman, MT 59715
HUD Regional/Area Office. I.I.L.S.R., Attn: Carroll Goodwin, Executive Tower Building, 1405 Curtis Street, Denver, CO 80202
County Commissioners, Courthouse, Bozeman, MT 59715
County Sheriff, Courthouse, Bozeman, MT 59715
Information Unit, Department of Health & Environmental Sciences, Helena, MT 59620
Environmental Information Center, P. O. Box 1184, Helena, MT 59624
Montana Historical Society, 225 N. Roberts, Helena, MT 59601
Michael Schweitzer, 820 S. 3rd, Bozeman, MT 59715
Allen & Associates, 611 W. Main, Bozeman, MT 59715
Walter Anderson, U. S. Department of Agriculture, 601 Nikles, Box B, Bozeman, MT 59715
Patrick E. Penberthy, Montana Power Company, P. O. Box 490, Bozeman, MT 59715
Clifford D. Rossberg, 441 North Park, Helena, MT 59601
Ray Schackleford, School District #7, P. O. Box 520, Bozeman, MT 59715
Belgrade Rural Fire District, 59 E. Main, Belgrade, MT 59714
Gallatin County Historical Society, 317 W. Main, Bozeman, MT 59715

RE: The Ranch Subdivision
Gallatin County

Ladies and Gentlemen:

The enclosed preliminary environmental review has been prepared for The Ranch Subdivision in Gallatin County, and is submitted for

your consideration. Questions and comments will be accepted until April 19, 1982. One extension of time not to exceed seven days will be granted upon request if there is sufficient reason for the request. All comments should be sent to the undersigned.

Sincerely,

Edward W. Casne, P.E., Chief
Subdivision Bureau
Environmental Sciences Division

EWC/jjg

Enclosures

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DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES
Cogswell Building, Helena, Montana 59601
(406)449-3946

PRELIMINARY ENVIRONMENTAL REVIEW

Division/Bureau: Environmental Sciences Division - Subdivision Bureau

Project or Application: The Ranch Subdivision, Phase I, II and III

Description of Project: The developers propose to create 12 lots in Phase I, 25 lots in Phase II, and 34 lots in Phase III. Each lot is intended for single family dwellings and are proposed to utilize individual wells and sewage disposal systems. The sewage disposal systems will consist of conventional type septic tanks for primary treatment and subsurface drainfields for secondary treatment.

POTENTIAL IMPACT ON PHYSICAL ENVIRONMENT

	Major	Moderate	Minor	None	Unknown	Comments on Attached Pages
1. Terrestrial & aquatic life and habitats			X			
2. Water quality, quantity and distribution		X				
3. Geology & soil quality, stability and moisture			X			
4. Vegetation cover, quantity and quality			X			
5. Aesthetics			X			
6. Air quality			X			
7. Unique, endangered, fragile, or limited environmental resources			X			
8. Demands on environmental resources of land, water, air & energy		X				
9. Historical and archaeological sites					X	

POTENTIAL IMPACTS ON HUMAN ENVIRONMENT

	Major	Moderate	Minor	None	Unknown	Comments on Attached Pages
1. Social structures and mores			X			
2. Cultural uniqueness and diversity				X		
3. Local and state tax base & tax revenue			X			
4. Agricultural or industrial production			X			
5. Human health					X	
6. Quantity and distribution of community and personal income			X			
7. Access to and quality of recreational and wilderness activities			X			
8. Quantity and distribution of employment				X		
9. Distribution and density of population and housing			X			
10. Demands for government services		X				
11. Industrial & commercial activity				X		
12. Demands for energy		X				
13. Locally adopted environmental plans & goals			X			
14. Transportation networks & traffic flows		X				

Other groups or agencies contacted or which may have overlapping jurisdiction Gallatin County Planning Board, Gallatin City County Health Department

Individuals or groups contributing to this PER. contributors are noted in the Preliminary Environmental Review

Recommendation concerning preparation of EIS Recommend against the preparation of an Environmental Impact Statement

PER Prepared by: Joseph A. Strasko, R.S.

Date: March 17, 1982

DHES/ESD-2

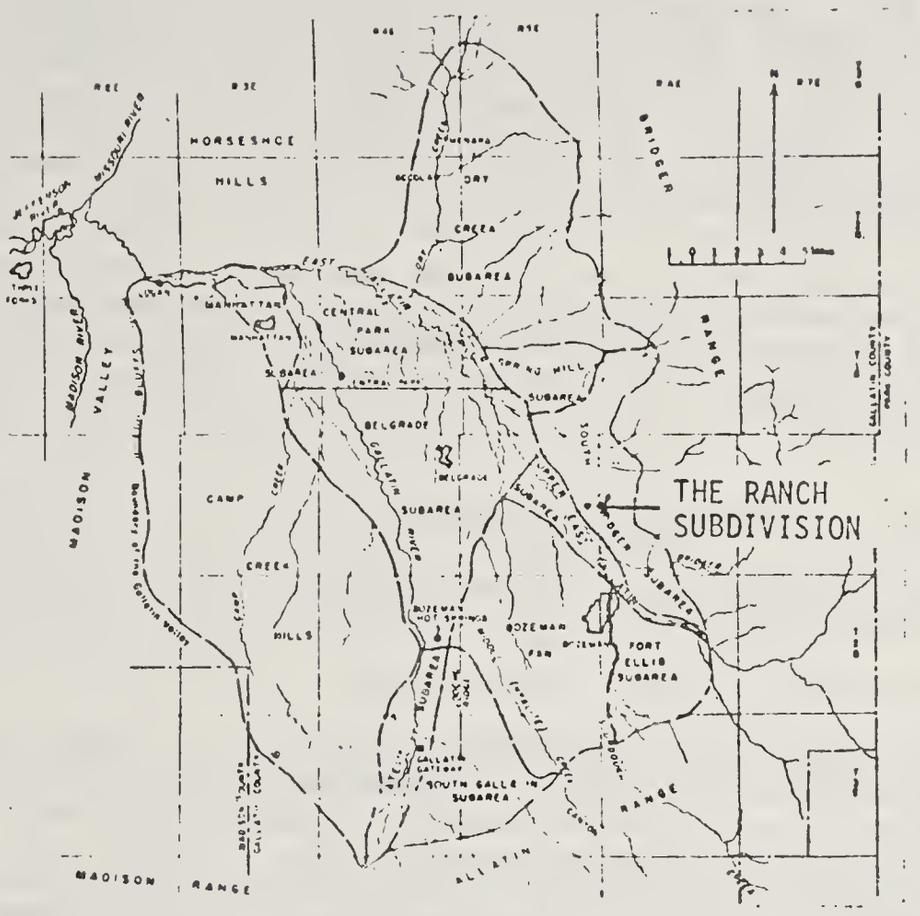

FIGURE 1. Map of the Gallatin Valley showing the principal topographic features, drainage, and hydrologic subareas (from Hackett, et al, 1960).

POTENTIAL IMPACT ON PHYSICAL ENVIRONMENT

1. Terrestrial & Aquatic Life and Habitats

All three phases of this proposed subdivision consist of crop land. This area lacks wood cover, weeds or waste area, which is necessary for a good wildlife habitat. According to Iris M. Moos, Wildlife Biologist, the species of wildlife which normally use the area in its present land use include mostly small birds, small populations of game birds consisting of pheasants, gray partridge and possibly sharp tailed grouse; raptors such as the hawks and small owls and rodents such as pocket gophers, ground squirrels and mice. Other mammals which may at times be found in the area are badgers, skunks, once in awhile a porcupine, voles, jack rabbits and cottontails. Louis M. Moos indicates that there are not "key" or critical wildlife habitat and no residents of known endangered species within the subdivision area. Big game such as deer may frequent the area but are not permanent residents on the area.

The only natural water source is Sypes Creek which is an intermittent stream that flows water during periods of heavy rains and snow melt. Since this stream is intermittent, it does not support any fish population. Therefore, there should not be an impact on aquatic life from the development of this subdivision.

2. Water Quality, Quantity and Distribution

Allen and Associates have indicated that each lot will be served by individual water wells.

According to Earth Science Services, Inc.:

> "The effect of the subdivision water wells on the hydrologic system is that they would divert some water for beneficial use that would otherwise travel to a discharge area and either be lost to the atmosphere or enter a stream. The water wells will slightly modify the system so that a new groundwater regimen is established, pumping will not cause water levels to decline forever, they will only decline until a new quasi-equilibrium is established in the system."

Darrel E. Dunn, PHD, Geologist-Hydrologist, summarizes his report by stating:

> "An analysis of available data indicated that an adequate supply of good quality groundwater exists for development of the Ranch Subdivision, Phase I, II and III. However, it is always good procedure to drill and test a well before constructing an expensive home. Available data provides no evidence that water wells in the immediate vicinity of the subdivision would experience a decrease in yield as a result of subdivision pumping. However, some unreported, marginally productive wells could exist in the area. If so, the subdivision could be a factor that could contribute to future inadequate productivity. Such marginal wells may be improved by drilling them deeper."

Sewage disposal will be throught the utilization of individual septic tanks and drainfields.

According to Earth Sciences Services, Inc.:

> "The hazard of septic tank effluent and lawn and garden fertilizer to drinking water supplies seems to be acceptable if the septic tank systems and water wells are properly located, designed, constructed and maintained."

This report indicates that the watertable is 15 feet below the ground level on Phase I, 25 feet below the ground level on Phase II and III and approximately 6 feet below the ground surface on lot 48 of Phase III.

This department will not approve subsurface sewage disposal until it is demonstrated with necessary soils testing and groundwater monitoring that groundwater will not rise within six feet of the natural ground surface and that the requirements of the rule are met.

3. Geology and Soil Quality, Stability and Moisture

The following information was provided by Walter C. Anderson, District Conservationist, Soil Conservation Service for Phase I:

> "The soils on this tract of land consist of alluvium soils built on the flood plain of Sypes Creek.
>
> These soils range from moderately deep to deep silt loams intergrading into clay loams over sands and gravels of mixed lithology.
>
> Water-tables probably do not approach within 10 feet of the soil surface, however no groundwater studies are available for years of high precipitations.
>
> The tract of land is part of the flood plain of Sypes Creek, which drains an area of approximately 3.7 square miles.
>
> Conclusions The maximum flood flow for the 25 year and 100 year frequencies as computed by Mr. Ray Center are reasonable.
>
> A floodway has been designed to handle the runoff waters. It is proposed in the plan to seed the dike and floodway with streambank wheatgrass using a hydroseeder. It is recommended that this species of grass seed be substituted with western wheatgrass, which is also drouth tolerant, is a good sod former and would do a better job of controlling soil erosion. Nitrogen fertilizer should be added as a starter fertilizer to assist in early vigorous growth of vegetation. It is also recommended that the area be seeded to oats after construction of the floodway and that the western wheatgrass be seeded in the fall into the standing oats without cultivation using a hydroseeder. Any weeds that develop could be controlled by use of a weedspray. This system would offer a better method of inhibiting the start of gully erosion in the waterway.

A mechanical floodway as proposed for the subdivision will require some maintenance down through the years. While the channel slope of the floodway appears to be very nearly equal throughout the floodway, it is possible that gully erosion and or siltation may develop. Some provision should be made to assure that the structure is maintained. Since the slope of the channel is 2% and well within erosion velocities, some problems could develop in the early vegetative establishment period of 1 to 3 years. Later some sedimentation problems could develop which could cause a washout of the dike or overtapping of the dike. The sedimentation problem is not considered to be a problem of short term occurence, but rather a problem developing perhaps over a period of time. A required maintenance program would assure the condition and life of the floodway."

The following soils information was provided by Earth Sciences Service Inc.:

"parts of the side of the valley of Sypes Canyon Creek may be only marginally stable if subjected to accelerations of a major earthquake. Therefore, it would be advisable to avoid construcing homes on the steep valley side slopes or near the brinks or bases of the steep slopes. It is the opinion of the author that a home should not be constructed within 50 feet of the base of the slope; and it is recommended 100 feet for a good margin of safety during major earthquakes. Also, it is recommended that houses be set back as far as practical from the brink with a minimum setback of 50 feet. The seismic hazard in the Gallatin Valley area is rated as high, and earthquakes of intensities of less than VII have been experienced. This intensity corresponds to slight to moderate damage to ordinary structures (Coffman and von Hake, 1973). A protective measure would be well constructed buildings. The author knows of no faults that have been mapped within the subdivision."

Soils in the proposed Phase I are indicated on a map titled Soil Map Gallatin Valley Area, Montana as being:

Bridger Gravelly Loam: A soil most extensive on the foothills and alluvial fans of the Bridger, Gallatin and Madison Ranges. The topsoil is hard grayish brown or almost black loam. The dark colored surface layer is generally 9-12 inches thick overlaying grayish brown noncalcareous gravelly loam. The subsoil ranges from light brown to yellowish brown loam. Bridger gravelly loam occurs in conjunction with Bridger loam and merges into it imperceptibly, with the main difference being gravel content[1].

A map entitled Soil Map Gallatin Valley Area, Montana, indicates two predominant varieties of soils in the Phase II subdivision. The eastern part of the subdivision is classified as the Brown Phase of the Bozeman Silt Loam Soil; the western half of the subdivision is classified as Amsterdam Silt Loam.

[1]Description of soils from Soil Survey of the Gallatin Valley area, Montana

The Amsterdam Loam series is classified as having severe limitations for road and street development and slight to severe for other types of urban developments.

Slope

The proposed subdivision generally slopes in a southwest direction. Slopes typically range from 2 to 10%, however, there are areas that exceed 10% especially along the northwest boundary where the proposed subdivision abutts the Ranch Subdivision - Phase I.

A map entitled Soil Map Gallatin Valley Area, Montana, indicates the predominant soil type in the subdivision is a Brown Phase of the Bozeman Silt Loam classification. There is, however, some Amsterdam Silt Loam in the western part of the proposed subdivision. The Bozeman Silt Loam series has a severe rating for road and street development and a slight to severe rating for other urban developments. The Amsterdam Loam series is classified as having severe limitations for road and street development and slight to severe for other types of urban development.

The proposed Phase III slopes in a westerly direction. However, the primary area of lot development is on a bench area above Sypes Canyon Road. Between this area and the road there is a steep hillside sloping a southeasterly direction. Slope on this hillside is approximately 30 - 35%. Slopes within the primary area of the subdivision range from 2 - 7%.

4. Vegetation Cover, Quantity and Quality

Most of the area in all three phases is now used as crop land with the extreme steep slopes left in natural grass. Vegetation cover will mostly increase as lawns are planted.

5. Aesthetics

Aesthetics is a highly subjective issue and there is very little agreement as to whether any housing projects detracts or enhances the beauty of a property. The aesthetic appeal of the project will depend a large part on the measures taken to restore damaged area quickly and maintain buildings and roads after occupancy.

6. Air Quality

Air Quality could deteriorate with high density use of wood burning stoves. Roads are proposed to be gravel increasing dust problems during dry and windy periods. Dust pollution could be a major problem for Phase I since all lots are adjacent to the Sypes Creek Road.

7. Unique, Endangered, Fragile, or Limited Environmental Resources

The primary area of concern is the potential for impact on the watertable due to subsurface sewage disposal and the associated aquifer.

8. Demands on Environmental Resources of Land, Water, Air and Energy

Rural subdivisions require more energy and material than urban expansions due to lower density and require extensions of roads and utilities. Homeowners at the development will consume more gasoline commuting to jobs and shopping centers than will residents of Bozemans central district.

If approved plans for water supply, sewage disposal, storm water runoff control and solid waste disposal are not followed, water quality may be adversely affected.

9. Historical and Archaeological Sites

Unknown

POTENTIAL IMPACTS ON HUMAN ENVIRONMENT

1. Social Structures and Mores

It is difficult to determine the final impact that development will have on social structures and mores. Such an impact would seem to be dependent on the people who will purchase the lots. However, it would seem reasonable to assume that these lots would be purchased by people whose social or moral values are typical of the general community.

2. Cultural Uniqueness and Diversity

No Comment

3. Local and State Tax Base and Tax Revenue

The following tax information was provided in the Environmental Assessment and Community Impact Reports provided by Rick Mayfield Associates, Inc.

The county classification and appraisal office records indicate that the proposed subdivisions are currently classified as follows:

Phase I - Classified as F1A4 non-irrigated farm land

Phase II - Three acres classified as G-5 grazing. Fifty eight acres classified as non-irrigated farm land.

Phase III - Thirty two acres classified as F-1A4 non-irrigated crops, seventeen acres as F-1A3 non-irrigated crops and sixteen acres as G-3 grazing.

All three subdivision areas would generate approximately $1,580.00 in taxes at current use.

Assuming each lot within the proposed subdivision is appraised at $4,000 by the classification and appraisal office, each lot would generate $87.39 in tax revenue. The total tax revenue for the undeveloped residential lots would be $6,729.03. Assuming the average appraised value of each house built in the proposed subdivision is $30,000, which is typical for subdivisions of this type, total tax revenue for the subdivision at full development will be approximately $51,500.

There are nc special assessments proposed for the subdivision.

4. Agricultural or Industrial Production

According to the Environmental Assessment and Community Impact Report, by Michael Schweitzer and Sons, Inc., the proposed subdivision is within the Bozeman City-County Planning Board jurisdictional area, and is covered by the Bozeman Area Plan - 1972. The plan designates the area of the subdivision as agriculture. The proposed land use would be for rural residential development with lot sizes of approximately 1 - 2 1/2 acres in size. The developers are applying for a land use designation change in the master plan to cover the area of the subdivison. The change would be from agriculture to rural suburban.

5. Human Health

Unknown

6. Quantity and Distribution of Community and Personal Income

This is a difficult impact to access as it is not known from where future residents might come or where they would be employed. Some may already live in the Bozeman area and have little if any impact with respect to distribution of income. Residents coming from areas outside the Bozeman area would cause an increase in community income and an increase in employment and commercial activity.

7. Access to and Quality of Recreational and Wilderness Activities

There is no known direct access to public lands through this subdivision.

8. Quantity and Distribution of Employment

It is probable that most new homes sales would result from a general increase growth of the Bozeman area and not a shift of population. Therefore, a substantial growth of community income should result upon occupancy of the total area.

9. Distribution and Density of Population and Housing

According to Environmental Assessment provided by Rick Mayfield Associates, Inc., all these phases will develop slowly. It is felt that the construction will take place as follows:

Phase I - The first house will probably be constructed in 1981, and from there the development will take place over a five to ten year period. This then, indicates the subdivision will be one half developed by the year 1986 and fully developed by the year 1991.

Phase II - The first house will probably not be constructed in the subdivision until at least the Fall of 1981 and more probably the Spring of 1982. From this point, the development will probably span a 10 to 20 year period. This then, indicates the subdivision will be one half developed by the year 1992 and fully developed by approximately the year 2000.

Phase III - It is felt that the first house will not be constructed in the subdivision until at least the Fall of 1981 and probably the Spring or Summer of 1982. From this point, the development will probably span a 10 - 20 year period. This then, indicates the subdivision will be one half developed by the year 1992 and fully developed by approximately the year 2000.

Phase I consists of a total area of 43.701 acres and will be used for 12 single family dwellings. Phase II will consist of 73.263 acres and will be used for 25 single family dwellings. Phase III will consist of 68.712 acres and will be used for a total of 34 single family dwellings.

10. Demands for Government Services

Police protection will be provided by the Gallatin County Sheriff office.

The subdivision is within the Belgrade Rural Fire District, per county subdivision policy, a cash donation of $35.00 per lot will be required prior to recording the first plat.

Ambulance services will be provided by Gallatin County Ambulance Service.

Mr. Ray Schackleford, Superintendent of School District #7 comments:

> "The proposed subdivision with the projected number of school age children can be accommodated by present personnel and facilities as well as with the existing bus service. It should be noted that in order to have bus service within the actual subdivision itself at least a 100 foot diameter cul-de-sac must be constructed.

11. Industrial and Commercial Activity

None

12. Demands on Energy

The following are comments provided by Mr. Patrick E. Penberthy, Montana Power Company:

"The Montana Power Company provides electric and natural gas service in the above referenced area and will extend said services to the proposed Subdivision subject to the rules and regulations prescribed and approved by the Montana Public Service Commission.

Electric utility service shall be provided underground as required by 38-2.14 (1) - S1420 of the Revised Codes of Montana, Section 79-304. The cost of this service will be contingent on the finalized load requirement when they are determined, as prescribed by Montana Public Service Commission Code."

Mr. Clifford D. Rossberg, Mountain Bell, stated:

"In regard to the Ranch Subdivision Phase II located in Gallatin County, this is to advise you that this subdivision is located in an area served by Mountain Bell. Our normal service offering in this area is multi-party rural. Facilities for this type of service are not available. They will be extended into the subdivision upon request of the individual applicants according to our tariffs on file with the Montana Public Service Commission.

If the subdivider wants to be assured that telephone facilities are available in the subdivision for individual buyers as required, this office should be contacted for a land development agreement."

13. Locally Adopted Environmental Plans and Goals

This property is presently zoned for agricultural purposes.

14. Transportation Networks and Traffic Flows

The Ranch Subdivision Phase I, II and III will use Sypes Canyon Road, Springhill Road and Old Highway 10 as the primary access.

The existing public roads will be modified by construction of one approach on the Summer Cutoff Road which will serve 30 lots and an approach on Sypes Canyon Road which will serve lot 48.

The traffic flow on the access roads will be increased substantially when total development occurs.